

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 3246 (1976): Canned Okra (Bhindi) [FAD 10: Processed Fruits and Vegetable Products]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



IS : 3246 - 1976

Indian Standard
SPECIFICATION FOR
CANNED OKRA (*BHINDI*)
(*First Revision*)

UDC 664.843.65 : 635.648



© Copyright 1977

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Price Rs 8.50 Gr 5

June 1977

Indian Standard

SPECIFICATION FOR CANNED OKRA (*BHINDI*) (*First Revision*)

Fruits and Vegetables Sectional Committee, AFDC 23

Chairman

DR P. K. KYMAL

Representing

Food and Nutrition Board, Ministry of Agriculture
and Irrigation (Department of Food),
New Delhi

Members

AGRICULTURAL MARKETING
ADVISER TO THE GOVERNMENT OF
INDIA

Directorate of Marketing & Inspection (Ministry
of Agriculture & Irrigation), Faridabad

DR B. S. SAXENA (*Alternate*)

SHRI S. R. BAJAJ

SHRI B. S. BHATIA

Bajaj Consultants, New Delhi

Defence Food Research Laboratory (Ministry of
Defence), Mysore

SHRI L. A. RAMANATHAN (*Alternate*)

SHRI D. S. CHADHA

Central Committee for Food Standards (Ministry
of Health), New Delhi

SHRI B. P. CHAKLADAR

Department of Agriculture, Government of West
Bengal

SHRI CHARANJIT SINGH

SHRI S. K. MITTAL (*Alternate*)

DR B. CHOUDHURY

DR J. C. ANAND (*Alternate*)

BRIG S. K. DAS

All India Cold Storages Association, New Delhi

Indian Agricultural Research Institute, New Delhi

Technical Standardization Committee (Food-
stuffs), (Ministry of Agriculture & Irrigation),
New Delhi

SHRI J. K. JAGTIANI (*Alternate*)

SHRI DAYA NAND

Central Fruit Products Advisory Committee
(Ministry of Agriculture & Irrigation),
New Delhi

SHRI K. R. NARASIMHAN

DR S. C. CHAKRAVARTY (*Alternate*)

DEPUTY DIRECTOR OF AGRI-
CULTURE (MARKETING)

THE HORTICULTURIST (*Alternate*)

The Metal Box Co of India Ltd, Calcutta

Department of Agriculture, Government of
Tamil Nadu

(*Continued on page 2*)

© Copyright 1977

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(Continued from page 1)

<i>Members</i>	<i>Representing</i>
SHRI S. D. DEWAN	Ministry of Agriculture & Irrigation (Department of Agriculture)
SHRI O. P. DHAMIJA	Export Inspection Council (Ministry of Commerce), Calcutta
SHRI KARTAB SINGH ARORA	Department of Agriculture, Government of Haryana
SHRI NARAIN DASS DUDEJA (Alternate)	
SHRI S. L. KATYAL	Indian Council of Agricultural Research, New Delhi
PROF RANJIT SINGH (Alternate)	
SHRI B. C. MATHUR	National Co-operative Development Corporation, New Delhi
DR R. L. NAGPAL	Department of Agriculture, Government of Maharashtra
DEPUTY DIRECTOR OF AGRICULTURE (HORTICULTURE) (Alternate)	
DR A. G. NAIK-KURADE	All India Food Preservers' Association, New Delhi
SHRI M. S. KOHLI (Alternate)	
DR M. V. PATWARDHAN	Central Food Technological Research Institute (CSIR), Mysore
SHRI V. B. DALAL (Alternate)	
SHRI S. RAMASWAMY	Development Council for Food Processing Industries (Directorate General of Technical Development), New Delhi
DR K. S. RANDHAWA	Punjab Agricultural University, Ludhiana
DR G. S. NIJJAR (Alternate)	
SHRI S. R. SHETTY	Indian Institute of Packaging, Bombay
SHRI S. M. NEMBHANI (Alternate)	
SHRI P. S. SRINIVASAN	Processed Foods Export Promotion Council, New Delhi; and Ministry of Commerce
SHRI B. K. IYENGAR (Alternate)	
COL R. N. TANEJA	Directorate of Supplies & Transport, Army Headquarters (Ministry of Defence)
LT-COL D. D. VOHRA (Alternate)	
DR S. S. TEAOTIA	Directorate of Fruit Utilization, Government of Uttar Pradesh, Lucknow
DR S. K. BOSE (Alternate)	
SHRI J. C. VERMA	Export Promotion Cell, Ministry of Agriculture and Irrigation
SHRI T. PURNANANDAM, Head (Agri & Food)	Director General, ISI (Ex-officio Member)

Secretary

SHRI V. S. MATHUR
Deputy Director (Agri & Food), ISI

(Continued on page 17)

Indian Standard
SPECIFICATION FOR
CANNED OKRA (*BHINDI*)
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 30 December 1976, after the draft finalized by the Fruits and Vegetables Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 There is sufficient amount of trade in canned okra within the country. Sizeable quantities of this product are also exported. It is, therefore, necessary to ensure the quality of the product.

0.3 This standard was first issued in 1965. The technical committee responsible for its preparation decided to revise it in the light of current practices prevalent in the country. In this revision definition of the term 'blemish' has been modified and of 'disintegrated units' has been added. Further, requirements, such as vacuum in cans and limits for arsenic, lead, copper and zinc have been made stringent. Also, the net contents of the product in cans of different capacities have been rationalized. Requirements for defects have been made more precise and references to the relevant Indian Standards for packing materials have been incorporated.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements for canned okra (*BHINDI*) [*Abelmoschus esculentus* (L.) Moench] canned in brine.

*Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Absence of Defects — The degree of freedom from extraneous material and also freedom from damage due to mechanical injury.

2.2 Blemished Units — Units that are blemished with some injury, such as wormhole, insect damage, physiological disorder or other abnormality, such as sun burn, scale or enzyme activity on the surface, readily visible to the naked eye to a noticeable degree. A unit shall be considered blemished when the aggregate blemished area exceeds the area of a circle of 0.32 cm in diameter. Uneven distribution of pigments and change in colour normally associated with proper processing or variety shall not be considered as defects.

2.3 Disintegrated Unit — Units which have lost the normal shape or form or from which portion have been separated.

3. STYLES

3.1 Okra used for canning shall be in any one of the following forms:

- a) Whole pieces unscrapped with butts trimmed; and
- b) Smaller pieces obtained from whole pieces, cut transversely with butts removed.

4. GRADES

4.1 Canned okra shall be of two grades, namely, Grade 1 and Grade 2.

5. REQUIREMENTS

5.1 Hygienic Requirements — The material shall be prepared and handled under strict hygienic conditions (*see* IS : 6542-1972*) by persons free from contagious and infectious diseases and only in premises maintained in a thoroughly clean and hygienic condition and having adequate and safe water supply. All workers shall use clean, white, washed clothing. Necessary precautions shall be taken to prevent incidental contamination of the product from soiled equipment or from personnel suffering from injuries.

5.1.1 All equipment coming in contact with raw materials or products in the course of manufacture shall be kept clean. An ample supply of steam and water, hose, brushes and other equipment necessary for proper cleaning of machinery and equipment shall be available. The equipment shall be properly cleaned with suitable chlorine solution having 50 mg/kg available chlorine.

*Code for sanitary conditions for fruit and vegetable canning units.

5.2 General— The okra selected for canning shall be of proper stage of maturity and shall have the characteristic colour, flavour and texture and shall be free from blemishes and free from damage by insect or disease. The okra used shall be of the same variety.

5.3 Freedom from Preservatives, Artificial Colouring Matter and Flavouring Agents— The material shall be free from any preservative, artificial colouring matter or flavouring agents.

5.4 Requirements for Covering Brine— The covering brine shall be clean. The only substances that may be added to it are edible common salt (sodium chloride) and citric or tartaric acid not exceeding 0.2 percent by mass of the packing medium and sugar. The covering brine shall have sodium chloride content between 1 to 2 percent.

5.5 Requirements for the Finished Product

5.5.1 The contents of the can on opening shall display the following characteristics.

5.5.1.1 Grade 1— The material shall possess a good, characteristic and practically uniform colour; the batch shall be practically uniform; shall be practically free from defects; shall be practically free from disintegration; shall possess a characteristic good texture and flavour so as to score not less than 85 points.

5.5.1.2 Grade 2— The material shall possess a good, characteristic and reasonably uniform colour; the batch shall be reasonably uniform; shall be reasonably free from defects; shall be reasonably free from disintegration; shall possess a characteristic reasonably good texture and flavour so as to score not less than 75 points.

5.5.1.3 The maximum and the minimum number of points to be scored by different factors shall be as given below:

<i>Maximum</i>		<i>Minimum</i>	
		Grade 1	Grade 2
Colour	20	16	13
Texture	40	30	25
Uniformity of size	10	7.5	5
Taste and flavour	20	16	10
Absence of defects	10	8	6.5

5.5.1.4 Scoring shall be done according to the method prescribed in Appendix A.

5.5.2 Colour

5.5.2.1 Grade 1 — The units shall possess a good, practically uniform colour, characteristic of okra of the proper maturity, practically free from any bluish-black discolouration either partly or wholly. Uneven distribution of pigments and change in colour normally associated with proper processing shall not be considered as defects.

5.5.2.2 Grade 2 — The units shall possess a good, reasonably uniform colour, characteristic of okra at the right stage of maturity, reasonably free from any bluish-black or black discolouration either partly or wholly. Uneven distribution of pigments and change in colour normally associated with proper processing shall not be considered as defects.

5.5.3 Texture

5.5.3.1 Grade 1 — The units shall possess a practically good texture which means that the units shall be just firm but not soft or woody and tough.

5.5.3.2 Grade 2 — The units shall possess a reasonably good texture which means that the units shall be reasonably firm, may be soft but not woody and tough.

5.5.4 Uniformity of Size

5.5.4.1 Grade 1 — Practically uniform in size.

5.5.4.2 Grade 2 — Reasonably uniform in size.

5.5.5 Taste and Flavour

5.5.5.1 Grade 1 — The units shall possess the characteristic taste of tender but not fibrous or tough okra. The units shall be completely devoid of any objectionable or off taste, or objectionable smell and odour.

5.5.5.2 Grade 2 — The units shall possess the characteristic taste of tender okra. The units shall be reasonably devoid of any objectionable or off taste, or objectionable smell and odour.

5.5.6 Absence of Defects

5.5.6.1 Grade 1 — The units shall be practically free from defects, which means that there shall be present no extraneous material like the butt ends, not more than 5 percent blemished units and not more than 5 percent disintegrated units, calculated on the drained weight. The covering brine shall be practically free from suspended matter and shall be practically free from blackening or discolouration. The detached seeds shall not be more than 0.5 percent calculated on basis of drained weight.

5.5.6.2 Grade 2—The units shall be reasonably free from defects, which means that there shall be present no extraneous material like the butt ends, not more than 10 percent of blemished units and not more than 10 percent of disintegrated units calculated on the drained weight. The covering brine shall be reasonably free from suspended matter and shall be reasonably free from blackening or discolouration. The drained seeds shall not be more than 0.5 percent calculated on basis of drained weight.

5.5.7 The material shall also conform to the requirements prescribed in Table 1.

TABLE 1 REQUIREMENTS FOR CANNED OKRA (BHINDI)

(Clauses 5.5.7 and 8.1)

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST (REF TO CL No. OF IS : 2860-1964*)
(1)	(2)	(3)	(4)
i)	Vacuum in the can in mm, <i>Min</i>	150	5
ii)	Drained mass of the contents of the can, as percentage of the net mass, <i>Min</i>	55	7
iii)	Arsenic, mg/kg, <i>Max</i>	1.0	13
iv)	Lead, mg/kg, <i>Max</i>	2.5	14
v)	Copper, mg/kg, <i>Max</i>	5.0	15
vi)	Zinc, mg/kg, <i>Max</i>	5.0	16
vii)	Tin, mg/kg, <i>Max</i>	250	17
viii)	Microbiological requirements	To satisfy the requirements of the test	18

*Methods of sampling and test for processed fruits and vegetables.

6. PACKING AND MARKING

6.1 Packing

6.1.1 The material shall be packed in cans made of electrolytic or equivalent tinplate. The cans shall be plain and hermetically sealed. The side seam shall also be lacquered. The can exterior shall be free from dents, rust, perforations and seam distortions. The cans shall not show leaking, panelling or swell. The interior of the plain cans may show visible black discolourations. Normal feathering shall not be considered as a defect.

6.1.2 The cans shall be filled with the material, without impairment of quality. The size of the cans and the net weight of their contents shall ordinarily be as given in Table 2. For determining their capacity and dimensions, method given in IS : 6093-1971* shall be followed.

In case, containers other than those specified in Table 2 are used, the size of the container and the net weight of the contents shall be as agreed to between the purchaser and the vendor.

TABLE 2 SIZES AND CAPACITIES OF CANS

SL No.	CONTAINER (TRADE NAME)	TRADE SIZE	NOMINAL DIAMETER	NOMINAL HEIGHT	NET WEIGHT OF CONTENTS
(1)	(2)	(3)	(4)	(5)	(6)
			mm	mm	g
i)	No. 1 tall	301 × 409	77·8	115·9	400
ii)	A — 2½	401 × 411	103·2	119·1	800

6.1.3 Packing in Cases — The cans shall be packed in wooden packing cases (*see* IS : 1503-1967†) or corrugated board boxes or any other case.

6.2 Marking

6.2.1 Each can shall be marked with the following particulars:

- Name, style and grade of the material with the brand name, if any;
- Name and address of the manufacturer;
- Net mass of the contents of the can in grams;
- Date of manufacture or code number indicating the date of manufacture; and
- Manufacturing licence number.

NOTE — Any other markings required under Package Commodities Regulations, 1975 shall also be given.

6.2.2 Each packing case shall also be marked with the following information:

- Name of the product;
- Gross weight;
- Name and address of the manufacturer;

*Method of determining the capacity and dimensions of hermetically sealed metal food containers.

†Specification for wooden packing cases (*first revision*).

- d) Number of cans and mass of each can;
- e) Date of manufacture or code number indicating the date of manufacture; and
- f) Manufacturing licence number.

6.3 The container may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

7. SAMPLING

7.1 Representative samples of the material shall be drawn and tested for conformity to this standard by the method prescribed in 3 of IS : 2860-1964*.

8. TESTS

8.1 The samples of canned okra shall be tested for ascertaining conformity of the material to the requirements of this standard by the method prescribed in Appendix A and the methods given in IS : 2860-1964*. Reference to relevant clauses is given in col 4 of Table 1.

APPENDIX A

(Clauses 5.5.1.4 and 8.1)

DETERMINATION OF THE GRADE OF THE PRODUCT

A-1. APPARATUS

A-1.1 White Porcelain Bowls — Big enough to hold the contents of the can under examination.

A-1.2 Stainless Steel Spoons — Table spoons.

A-2. PROCEDURE

A-2.1 Panel of Judges — Judging for grading the product shall be done by a panel of three to five judges. All the judges constituting a panel shall

*Methods of sampling and test for processed fruits and vegetables.

be conversant with the factors governing the quality of the product. The cans shall be opened and the contents poured separately into white porcelain bowls. Each judge shall independently examine the contents from each of the cans and assign scores for different characteristics.

A-2.1.1 The judges shall consider the following characteristics:

Colour, texture, uniformity of size, taste and flavour, and absence of defects.

A-2.2 System of Scoring — The variations within each factor are so described that the scores may be ascertained for each factor and expressed numerically. The relative importance of each factor has been expressed numerically on a scale of 100. Each judge shall give a score for the individual factors, by the method described in Table 3 and record his observations in the Score Sheet for Individual Judge.

A-2.2.1 The scores as number of points given on the Score Sheet by the judges for the contents of each can for the four factors shall be recorded in a tabular form in the Score Card and the average score calculated for each factor with overall average for each can entered in the appropriate columns of the Score Card after complying with the conditions specified in **A-2.3.1** and **A-2.3.2**.

A-2.3 Ascertaining the Grade

A-2.3.1 Agreement Among Judges — To ascertain the consistency of judgement among the judges, the total score assigned by each of them for the contents of the same can shall be calculated by adding up the score for the various individual characteristics. If the difference between the maximum and the minimum of the total score so obtained does not exceed $(K + 5)$, where K is the number of judges, the scoring shall be deemed as consistent for the can under consideration. If the difference exceeds $(K + 5)$, the most outlying score, that is, the one which is farthest from its immediate neighbour (the scores being arranged in one order), shall be discarded and the consistency among the remaining judges shall be examined.

A-2.3.2 When the consistency is thus established (**A-2.3.1**), the overall average scores given by the judges, whose scoring has been found to be consistent, shall be calculated for each can. The average score for each of the individual characteristics shall also be calculated by taking into account the corresponding scores as given by the same judges for the contents of the same can.

A-2.3.3 Assignment of Grade — In order to assign a grade for the contents of a can, the following procedure shall be adopted.

A-2.3.3.1 Grade 1 — The score for each factor individually (**A-2.3.2**) shall be not less than 75 percent of the maximum score obtainable, and the overall average score shall be not less than 85 points.

A-2.3.3.2 Grade 2 — The score for each factor individually (**A-2.3.2**) shall be not less than 65 percent of the maximum score obtainable, and the overall average score shall be not less than 75 points.

TABLE 3 METHODS FOR GIVING SCORES FOR CANNED OKRA (BHINDI)

(Clause A-2.2)

SL No.	ORGANOLEPTIC CHARACTERISTIC	REQUIREMENT	MAXIMUM NUMBER OF POINTS	PROPERTIES WHICH REDUCE THE VALUE	VALUE REDUCED UP TO, POINTS
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour	Good, green bright yellow uniform characteristics of the variety and proper maturity; free from any bluish-black or black discoloration. Uneven distribution of pigments and change in colour normally associated with proper processing shall not be considered as defects.	20	Not quite uniform, slightly varying shades of the characteristics colour, very slight discoloration	16
				Non uniform, some units may have pale yellowish green colour	13
				Some discoloration, dull, non-uniform, black discoloration	0
ii)	Texture	Good uniform texture, just firm but not soft or woody and tough	40	Texture not uniform, some units slightly woody or mashy	30
				Units rather hard, some units may be woody, tough or mashy	25
				Woody, tough or mashy texture	0
iii)	Uniformity of size	Practically uniform in size	10	Reasonably uniform in size	7.5
				Some units not uniform in size	5
				Sizes not uniform	0

(Continued)

**TABLE 3 METHODS FOR GIVING SCORES FOR CANNED
OKRA (BHINDI) — Contd**

SL No.	ORGANOLEPTIC CHARACTERI- STIC	REQUIREMENT	MAXIMUM NUMBER OF POINTS	PROPERTIES WHICH REDUCE THE VALUE	VALUE REDUCED UP TO, POINTS
(1)	(2)	(3)	(4)	(5)	(6)
iv)	Taste and flavour	Pleasant flavour and taste characteristics of tender okra, free from any objectionable off taste of odour asso- ciated with staleness and metallic taste	20	Slight variation in the normal taste due to use of over mature pieces Taste indicating that the units are over mature Predominant off taste and flavour	16 10 0
v)	Absence of defects	Free from defects, no extraneous material present, free from blemished disinte- grated units. Covering brine shall be clear, free from cloudiness, blackening or free from sediment	10	Blemished units up to 5 percent and disinte- grated units up to 5 percent calculated on drained weight. Covering brine with a trace of sediment Blemished units up to 10 percent and dis- integrated units up to 10 percent calculated on drained weight. Covering brine slight- ly black Blemished and dis- integrated units each above 10 percent thick black	8 6.5 0

NOTE 1 — While rating for 'Absence of Defects' a tentative maximum score of 4 points for absence of blemished units, 3 points for absence of disintegrated units and 4 points for clarity of liquor may be considered.

NOTE 2 — The zero (0) values given in col 6 in some cases, indicate that the corresponding properties (of col 5) are permissible.

SCORE SHEET FOR INDIVIDUAL JUDGE

(Clause A-2.2)

Sample No

Date of Sampling.....

DETAILS OF THE SAMPLE CAN:

a) Product..... b) Name of Manufacturer.....

c) Type..... d) Batch No.....

e) Date of Manufacture

Factor	Score Points	Sample Cans									
		1	2	3	4	5	6	7	8	9	10
Colour	Grade 1: 16 - 20										
	Grade 2: 13 - 15										
Texture	Grade 1: 30 - 40										
	Grade 2: 25 - 39										
Uniformity of size	Grade 1: 7·5 - 10										
	Grade 2: 5 to 7 4										
Taste and flavour	Grade 1: 16 - 20										
	Grade 2: 10 - 15										
Absence of defects	Grade 1: 8 - 10										
	Grade 2: 6·5 - 7·5										

Signature of the Judge
with Date

As in the Original Standard, this Page is Intentionally Left Blank

SCORE CARD

(Clause A-2.2.1)

Sample No.....

Date of Sampling.....

DETAILS OF THE SAMPLE CAN:

a) Product.....

b) Name of Manufacturer.....

c) Type.....

d) Batch No

e) Date of Manufacture.....

[illegible]

As in the Original Standard, this Page is Intentionally Left Blank

(Continued from page 2)

Processed Fruits and Vegetables Subcommittee, AFDC 23 : 3

<i>Convener</i>	<i>Representing</i>
SHRI DAYA NAND	Central Fruit Products Advisory Committee (Ministry of Agriculture & Irrigation), New Delhi
<i>Members</i>	
AGRICULTURAL MARKETING ADVISED TO THE GOVERNMENT OF INDIA	Directorate of Marketing & Inspection (Ministry of Agriculture & Irrigation), Faridabad
DIRECTOR OF LABORATORIES (Alternate)	
DR J. C. ANAND	Fruit Processing Division, Indian Agricultural Research Institute (ICAR), New Delhi
SHRI N. P. BHARGAVA	The Midland Fruit & Vegetable Products (India) Pvt Ltd, New Delhi
SHRI B. S. BHATIA	Defence Food Research Laboratory (Ministry of Defence), Mysore
SHRI L. A. RAMANATHAN (Alternate)	
SHRI GIRDHARI LAL	Provision Merchants' Association, Delhi
DR P. K. KYMAL	Technical Standardization Committee (Foodstuffs) (Ministry of Agriculture & Irrigation), New Delhi
SHRI P. K. DHINGRA (Alternate)	
SHRI LALJIT SINGH	Punjab State Co-operative Supply and Marketing Federation Ltd, Chandigarh
SHRI V. C. MAMADAPUR	Fruit and Vegetable Co-operative Processing Society Ltd, Kushalnagar
SHRI B. C. MATHUR	National Co-operative Development Corporation, New Delhi
DR A. G. NAIK-KURADE	All India Food Preservers' Association, New Delhi
SHRI A. K. TIKOO (Alternate)	
SHRI A. M. NANJUNDASWAMY	Central Food Technological Research Institute (CSIR), Mysore
SHRI M. V. SASTRY (Alternate)	
SHRI C. V. PAUL	Canning Industries Cochin Limited, Trichur
SHRI V. L. SHARDA	Tims Products Limited, Calcutta
DR L. L. KHATRI (Alternate)	
SECRETARY	Central Committee for Food Standards (Ministry of Health), New Delhi
SECRETARY	Development Council for Food Processing Industries (Directorate General of Technical Development), New Delhi
COL R. N. TANEJA	Directorate of Supplies & Transport, Army Headquarters (Ministry of Defence)
LT-COL D. D. VOHRA (Alternate)	

INDIAN STANDARDS

ON

FRUITS AND VEGETABLES

IS:

- 2860-1964 Methods of sampling and test for processed fruits and vegetables
- 2867-1964 Canned mangoes
- 2868-1964 Canned pineapples
- 2869-1964 Canned orange segments
- 3245-1965 Canned peas in brine
- 3246-1976 Canned okra (*BHINDI*) (*first revision*)
- 3247-1976 Canned bitter gourd (*KARELA*) (*first revision*)
- 3248-1965 Canned tomatoes
- 3500-1966 Mango chutney
- 3501-1966 Pickles
- 3543-1966 Papain
- 3547-1976 Mango nectar (*first revision*)
- 3570-1965 Nomenclature of fruits
- 3880-1976 Canned mango pulp (*first revision*)
- 3881-1966 Tomato juice
- 3882-1966 Tomato ketchup
- 3883-1966 Canned tomato puree
- 3884-1966 Canned tomato paste
- 4624-1968 Dehydrated peas
- 4625-1968 Dehydrated carrots
- 4626-1968 Dehydrated potatoes
- 4627-1968 Dehydrated cabbage
- 4628-1968 Dehydrated okra (*BHINDI*)
- 4935-1968 Synthetic syrups
- 4936-1968 Fruit squashes
- 4939-1968 Methods of test for products derived from fruits and vegetables
- 5781-1970 Method for determination of total solids in fruits and vegetable products
- 5803-1970 Orange juice
- 5861-1970 Fruit jams, jellies and marmalades
- 7254-1974 Methods of test for determining preservatives in fruit and vegetable products:
Part I Benzoic acid
- 7470-1974 Nomenclature of vegetables
- 7732-1975 Apple juice

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	Unit	Symbol
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	Unit	Symbol
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	Unit	Symbol	Conversion
Force	newton	N	1 N = 1 kg·1 m/s ²
Energy	joule	J	1 J = 1 N·m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V·s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephone : 27 01 31 (20 lines)

Telegrams : Manaksanstha

Regional Offices:

Western : Novelty Chambers, Grant Road
 Eastern : 5 Chowringhee Approach
 Southern : C. I. T. Campus, Adyar

BOMBAY 400007
 CALCUTTA 700072
 MADRAS 600020

Telephone

37 97 29
 23-08 02
 41 24 42

Branch Offices:

'Pushpak', Nurmohamed Shaikh Marg, Khanpur
 'F' Block, Unity Bldg, Narasimharaja Square
 Ahimsa Bldg, SCO 82-83, Sector 17C
 5-B-56/57 L. N. Gupta Marg
 117/41B B Sarvodaya Nagar
 B.C.I. Bldg (3rd Floor), Gandhi Maidan East
 Hantex Bldg (2nd Floor), Rly Station Road

AHMADABAD 380001 2 03 91
 BANGALORE 560002 2 76 49
 CHANDIGARH 160017 2 83 20
 HYDERABAD 500001 4 57 11
 KANPUR 208005 82 72
 PATNA 800004 5 36 55
 TRIVANDRUM 695001 32 27

**AMENDMENT NO. 1 MAY 1996
TO
IS 3246 : 1976 SPECIFICATION FOR
CANNED OKRA (*BHINDI*)**

(First Revision)

(*Page 3, clause 0.2*) — Insert the following new clause **0.3** after **0.2** and renumber the subsequent clause:

'0.3 A scheme for labelling environment friendly products known as ECO-Mark has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO-Mark shall be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolution No. 71 dated 20 February 1991 and Resolution No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with the ECO-Mark it shall also carry the Standard Mark of BIS for quality besides meeting additional environment friendly (EF) requirements. The environment friendly requirements for canned okra (*bhindi*) are, therefore, included through Amendment No. 1 to this standard.

This amendment is based on the Gazette Notification No. 624 (E) dated 6 September 1995 for Labelling Beverages, Infant Foods, Processed Fruits and Vegetable Products as Environment Friendly, published in the Gazette of the Government of India.'

(*Page 7, clause 5.5.5*) — Insert the following new clause after **5.5.5**:

"5.6 Additional Requirements for ECO-Mark

5.6.1 General Requirements

5.6.1.1 The product shall conform to the requirements prescribed under **5.1** to **5.5.5**.

5.6.1.2 The manufacturer shall produce the consent clearance as per the provisions of *Water (PCP) Act*, 1974, *Water (PCP) Cess Act*, 1977 and *Air (PCP) Act*, 1981 along with the authorization if required under *Environment (Protection) Act*, 1986 and the Rules made thereunder to the Bureau of Indian Standards while applying for the ECO-Mark and the product shall also be in accordance with the *Prevention of Food Adulteration Act*, 1954 and the Rules

Amend No. 1 to IS 3246 : 1976

made thereunder. Additionally, FPO 1955 (Fruit Product Order) framed under *Essential Commodities Act, 1955, Standards of Weights and Measures Act, 1977* requirements wherever applicable has to be complied with.

5.6.1.3 The product/package may also display in brief the criteria based on which the product has been labelled environment friendly.

5.6.1.4 The material used for product/packing shall be recyclable or biodegradable.

5.6.1.5 The date of manufacture and date of expiry shall be declared on the product package by the manufacturer.

5.6.1.6 The product shall be microbiologically safe when tested as per IS 5403 : 1969 'Method for yeast and mould count of foodstuffs' and IS 5887 (Part 5) : 1976 'Methods for detection of bacteria responsible for food poisoning : Part 5 Isolation, identification and enumeration of *Vibrio Cholerae* and *Vibrio Parahaemolyticus* (first revision)' and shall be free from bacterial and fungal toxins.

5.6.1.7 The pesticide residues, if any in the product shall not exceed the limit as prescribed in *PFA Act, 1954* and the Rules made thereunder.

5.6.1.8 The product/package or leaflet accompanying it may display instructions of proper use, storage and transport (including refrigeration temperature compliance) so as to maximize the product performance, safety and minimize wastage.

5.6.2 Specific Requirements

5.6.2.1 The product shall not contain any of the heavy metal contaminants in excess of the quantities prescribed in Table 1."

(Page 9, clause 6.3) — Insert the following new clause after 6.3:

'6.4 ECO-Mark

The product may also be marked with the ECO-Mark, the details of which may be obtained from the Bureau of Indian Standards.'

(FAD 10)